National Institute of Environmental Health Sciences

Climate change effects on plague and tularemia in the United States

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Abstract:

Plague and tularemia are serious zoonotic diseases endemic to North America. We evaluated spatial patterns in their transmission in view of changing climates. First, we tested whether observed shifts since the 1960s are consistent with expected patterns of shift given known climate changes over that period. Then, we used general circulation model results summarizing global patterns of changing climates into the future to forecast likely shifts in patterns of transmission over the next 50 years. The results indicate that these diseases are indeed shifting in accord with patterns of climatic shift, but that overall geographic shifts will likely be subtle, with some northward movement of southern limits and possibly northward movement of northern limits as well.

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Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Other Climate Scenario

Other Climate Scenario: HadCM3 A2; HaDcm3 B2; CGCM1 A2; CGCM1 B2

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Precipitation, Temperature, Other Exposure

Temperature: Fluctuations

Other Exposure: evapotranspiration

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

United States

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease, Zoonotic Disease

Vectorborne Disease: Tick-borne Disease

Tick-borne Disease: Plague

Zoonotic Disease: Tularemia

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Outcome Change Prediction

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Medium-Term (10-50 years)

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content